



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/934,839	08/23/2001	Osamu Tanaka	NC0002-US/OH	8501
466	7590	12/03/2003	EXAMINER	
YOUNG & THOMPSON 745 SOUTH 23RD STREET 2ND FLOOR ARLINGTON, VA 22202			DICUS, TAMRA	
			ART UNIT	PAPER NUMBER

1774

DATE MAILED: 12/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/934,839

Applicant(s)

TANAKA ET AL.

Examiner

Tamra L. Dicus

Art Unit

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-17, 19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17, 19 and 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

### *Response to Amendment*

The 112 rejections of the prior Office Action are withdrawn due to Applicant's amendments.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-11, 13-14, 16, and 19-20 (amended) are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,213,872 to Pricone et al. in view of USPN 6,258,443 to Nilsen et al.
2. Pricone teaches preprinted retroreflective highway signs having a base, discontinuous, individual, and isolated printed repetitive geometric duplicate parts (instant claims 1, 3, and 17) providing the advantages of processing and longer life, reducing the labor intensive aspects of producing a sign. See col. 3, lines 29-40 and Figures 4-5. Retroreflective element 31 is included of a cube-corner type. The repetitive signs are spaced apart and also allow for individual prints to be separated by line 214. Overlay 210 is of a fluorinated resin (fluorine-containing resin film) such as Tedlar or Kynar (instant claim 10). The fluorine-contained resin film is present of the base on the light-incident side. Pricone teaches a retroreflective base having a light-incident layer on the light-incident side thereof and a fluorine-containing resin

Art Unit: 1774

film. See col. 8, lines 53-60 and Example 1. Also in Example 1, a printing ink composition as recited in claim 2 is taught.

Pricone teaches a retroreflective base having a light-incident layer on the light-incident side thereof and a fluorine-containing resin film, but does not state the film has a total light transmittance of 80% or more or the tetrafluorethylene unit weight of claim 11. Nilsen provides a textured retroreflective prism having the light transmittance properties using the same fluorinated polymers at col. 12, lines 55-68 as instant claims 1, 9, and 11 requires and discloses the transmittance properties taught at col. 11, lines 45-55. Nilsen uses such material for signage also at col. 1, lines 45-59. It would have been obvious to one of ordinary skill in the art to modify the material of Pricone to have transmittance properties as required by the claims because Nilsen teaches the same materials are light transmissible having the percentage values of Applicant.

Pricone provides bonding layer 28, between resin film and printed parts but Pricone does not provide an adhesive layer adjacent the printed parts, providing said film laminated on light-incident layer on contact with an adhesive. Pricone does not teach a surface treatment such as corona discharge as required in instant claims 7-8. Pricone discloses a releasing layer 38 (instant claim 14) adjacent to (contacting) an adhesive layer 36 (a base adhesive, instant claim 14) in Figures 4-5. The reflective layer is not on the base adhesive layer. Pricone does not include a prism layer or reflective layer (instant claim 14).

Nilsen teaches retroreflective sheeting types that include prisms. Nilsen teaches reflective layers adjacent to adhesives in Figure 9. Nilsen teaches adhesive tie layers (suggesting use as a base adhesive in addition to an adhesive layer) may be between a resinous layer and

Art Unit: 1774

reflective elements to provide interfacial adhesion at col. 15, lines 40-55. Further teaching surface treatments such as corona discharge at col. 15, line 65-col. 16, line 3 (as required by instant claims 7-8). It would have been obvious to one of ordinary skill in the art to modify the sheeting of Pricone to provide printed parts or reflective elements adjacent an adhesive, further including all the additional layers, being structured as required by instant claims 1, 13, and 14 because Nilsen teaches adhesive tie layers may be between a resinous layer and reflective elements to provide interfacial adhesion, reflective and prisms added as a conventional embodiment as Nilsen provides in Figure 9. It would have been obvious to one of ordinary skill in the art to modify the sheeting of Pricone to provide a surface treatment such as corona discharge as instant claims 7-8 require to also improve adhesion as taught by Nilsen as cited above.

Pricone does not provide the spacing requirements of instant claims 1, 3-5, 19 and 20. However, how the printed parts are spaced is merely an optimizable feature. It would have been obvious to one of ordinary skill in the art to modify because Pricone describes process steps adjusting spacing during manufacturing at col. 4, line 50-col. 5, line 15 selecting gap dimensions as desired. Pricone does not teach the printing process effected conditions e.g. printing length of the printed parts as recited in instant claims 4 and 5 or the printed layer total area of 80% or less (instant claim 6), however, such variations of length and percent area of print are optimizable. It would have been obvious to one of ordinary skill in the art to modify the sheeting of Pricone to vary length and % area since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272. The spacings and area are effected by the process conditions of the machine, e.g. time and speed.

Art Unit: 1774

Moreover, how the printed parts are spaced is merely an optimizable feature. It would have been obvious to one of ordinary skill in the art to modify because Pricone describes process steps adjusting spacing during manufacturing at col. 4, line 50-col. 5, line 15 selecting gap dimensions as desired.

Claims 12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,213,872 to Pricone et al. in view of USPN 6,258,443 to Nilsen et al. and further in view of USPN 6,110,574 to Ochi et al.

Pricone and Nilsen are relied upon above. Pricone teaches an adhesive such as a pressure-applied adhesive (col. 7, line 61-col. 8, line 5). Pricone does not teach an adhesive such as a pressure-sensitive adhesive as instant claims 12 and 17 require. Ochi teaches a retroreflective sheeting comprising a retroreflective base having a light-incident layer on the light-incident side thereof and a fluorine-containing resin film having a total light transmittance of 80% or more, laminated on light-incident layer on contact with an adhesive layer (claims 1 and 13) or a pressure-sensitive adhesive (PSA) layer (claims 12 and 17) at col. 5, lines 42-43. It would have been obvious to one of ordinary skill in the art to modify the sheeting of Pricone to include a PSA layer because Ochi teaches PSA layers are a type of adhesive to use with retroreflective sheeting as suggested by Pricone.

3. Claims 1-6, 9-13, 16-17, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,110,574 to Ochi et al. in view of USPN 5,213,872 to Pricone et al.

Ochi teaches a retroreflective sheeting comprising a retroreflective base having a light-incident layer on the light-incident side thereof and a fluorine-containing resin film having a total light transmittance of 80% or more, laminated on light-incident layer on contact with an adhesive

Art Unit: 1774

layer (claims 1 and 13) or a pressure-sensitive adhesive (PSA) layer (claims 12 and 17) at col. 5, lines 42-43. The fluorine-contained resin film is present of the base on the light-incident side.

See col. 2, lines 45-col. 3, lines 21 and col. 5, lines 20-32. Ochi teaches the surface tension requirements of instant claim 16 of 31 dynes/cm (same as Applicant) at col. 4, lines 20-35

Ochi does not teach the printed discontinuous and individual parts between the film and adhesive. Ochi does not provide a printing ink composition as recited in claim 2. Pricone teaches preprinted retroreflective highway signs having a base, discontinuous, individual, and isolated printed repetitive geometric duplicate parts (instant claims 1, 3, and 17) providing the advantages of processing and longer life, reducing the labor intensive aspects of producing a sign. The repetitive signs are spaced apart and also allow for individual prints to be separated by line 214. See col. 3, lines 29-40 and Figures 4-5. Retroreflective element 31 is included of a cube-corner type. Overlay 210 is of a fluorinated resin (fluorine-containing resin film) such as Tedlar or Kynar (instant claim 10). See col. 8, lines 53-60 and Example 1. Also in Example 1, a printing ink composition as recited in claim 2 is taught. Therefore it would have been obvious to one of ordinary skill in the art to modify the sheeting of Ochi to include fluorine-containing or vinyl chloride resins since Pricone teaches such a resin is conventional to use with ink on retroreflective sheeting as Pricone describes in Example 1. Ochi does not teach printing in a spaced apart fashion as in instant claims 3, 19, and 20. It would have been obvious to one of ordinary skill in the art to modify the sheeting of Ochi to provide printed information in a spaced apart fashion as in recited claims to provide information for providing the advantages of processing and longer life, reducing the labor intensive aspects of producing a sign as taught by Pricone. See col. 3, lines 29-40 and Figures 4-5. Moreover, how the printed parts are spaced is

Art Unit: 1774

merely an optimizable feature. It would have been obvious to one of ordinary skill in the art to modify the sheeting of Ochi because Pricone describes process steps adjusting spacing during manufacturing at col. 4, line 50-col. 5, line 15 selecting gap dimensions as desired.

Ochi does not teach the printing process effected conditions e.g. printing length of the printed parts as recited in claims 4 and 5 or the printed layer total area of 80% or less (claim 6), however, such variations of length and percent area of print are optimizable. It would have been obvious to one of ordinary skill in the art to modify the sheeting of Ochi to vary length and % area since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272. The spacings and area are effected by the process conditions of the machine, e.g. time and speed.

The examiner has established a *prima facie* case of obviousness and has provided evidentiary support thereof for the rejection under 35 U.S.C. 103(a).

7. Claims 7-8, and 14 (amended) are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,110,574 to Ochi et al. in view of USPN 5,213,872 to Pricone et al. as applied to claims 1 and 13 above, and further in view of USPN 6,258,443 to Nilsen et al.

Ochi and Pricone are relied upon above. Ochi teaches the surface tension requirements of instant claim 7 of 31 dynes/cm (same as Applicant) at col. 4, lines 20-35, but does not mention a surface treatment *per se*. Ochi does not teach a surface treatment such as corona discharge as required in instant claim 8. Nilsen teaches retroreflective sheeting types that include prisms. Nilsen provides a textured retroreflective prism having the light transmittance properties using the same fluorinated polymers at col. 12, lines 55-68 as instant claims 1, 9, and 11 requires and discloses the transmittance properties taught at col. 11, lines 45-55. Nilsen uses such material for

Art Unit: 1774

signage also at col. 1, lines 45-59. Nilsen teaches adhesive tie layers (suggesting use as a base adhesive in addition to an adhesive layer) may be between a resinous layer and reflective elements to provide interfacial adhesion at col. 15, lines 40-55. Nilsen teaches reflective layers adjacent to adhesives in Figure 9. Further teaching surface treatments such as corona discharge at col. 15, line 65-col. 16, line 3 (as required by instant claim 8). It would have been obvious to one of ordinary skill in the art to modify the sheeting of Pricone to provide a surface treatment such as corona discharge to provide also improve adhesion as taught by Nilsen as cited above.

Ochi does not disclose the structure of claim 14. Ochi does not teach a base adhesive or releasing layer as in claims 14. Pricone discloses a releasing layer 38 adjacent to a base adhesive layer 36 in Figures 4-5 as instant claim 14 requires. It would have been obvious to one of ordinary skill in the art to modify the sheeting of Ochi to include the additional adhesive and releasing layers as instant claim 14 requires because Pricone teaches it is a suitable construction as shown in Figures 4-5.

Ochi does not describe a prism layer or reflective layer in claim 14. Nilsen teaches a prism layer and reflective layer as required by instant claim 14 at col. 6, lines 10-25 and Figure 9. Nilsen provides prisms in retroreflective sheeting for scattering light differently (col. 1, line 58-col. 2, line 8 and col. 3, lines 1-10) and reflective material for daylight reflecting (col. 16). It would have been obvious to one of ordinary skill in the art to modify the sheeting of Ochi to include a prism and reflective layer as in instant claim 14 because Nilsen teaches this embodiment it is a suitable construction for scattering light differently as cited above.

Claim 15 (amended) is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN

Art Unit: 1774

6,110,574 to Ochi et al. in view of USPN 5,213,872 to Pricone et al. as applied to claim 13 above, and further in view of USPN 6,416,911 to Mehta et al.

4. Ochi and Pricone are relied upon above. Ochi does not teach adding beads or fixing beads. Meta teaches image bonding surfaces of retroreflective sheeting using beads. Mehta teaches retroreflective sheeting types that include beads. Mehta describes a binder layer (14) (base adhesive and binder layer (claim 15), where glass microspheres 12 (beads) are embedded in 14 and under 12 is a reflective layer 16 (claim 14) at col. 5, lines 51-68 where the support layer 16 contacts 14, a release liner may be adjacent to the PSA layer, serving as a separating material (meeting claim 15). Hence it would have been obvious to one of ordinary skill in the art to modify the sheet of Ochi to further include the layers and structure of claims 14 and 15 since Mehta teaches this embodiment is a typical construction in Figure 1.

#### ***Response to Arguments***

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Mehta is still used in the rejection for glass beads, a fluorine-containing layer in a retroreflective layer. At col. 8, lines 55-60, Mehta explains how the cover layer is made of a fluorine-containing resin. At col. 6, lines 40-45, adhesives MMA and vinylidene fluoride is between the cover and retroreflective layers. Mehta explains the printing layer can be provide on both surfaces of the cover layer at col. 12, lines 9-11. Nilsen is relied upon to teach prisms in retroreflective material. Ochi is still used in the rejection because Ochi provides the same material Applicant uses.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamra L. Dicus whose telephone number is (703) 305-3809. The examiner can normally be reached on Monday-Friday, 7:00-4:30 p.m., alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on (703) 308-0449. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-8329.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

November 28, 2003

Tamra L. Dicus  
Examiner  
Art Unit 1774

CYNTHIA H. KELLY  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700

*Cynthia H. Kelly*